PALMAE MALESICAE—XVI

The Little-known Malayan Genus Calospatha

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CALOSPATHA is a lepidocaryous genus which Beccari had proposed to include in Hooker's Flora of British India VI (1893), but which Hooker omitted apparently because the type material was very imperfect and could not be matched with anything in the Kew herbarium. Beccari had named the type species of the proposed genus as *C. Scortechinii* and had sent to Kew a drawing with a description of the type specimen.

Ridley used this Beccari's drawing and two more specimens to found a new species *Daemonorops Calospatha,* where the specific epithet is Beccari's manuscript generic name omitted by Hooker. The three syntypes of this species are as follows: (A) a specimen collected by Ridley on Gunong Keledang and bearing a portion of a leaf and a flowering spadix; (B) a specimen brought to Ridley from Gunong Keledang by a native collector and consisting of a fruiting spadix only; and (C) the drawing of Scortechini's specimen sent by Beccari.

Now the specimens (A) and (C), though true Calospatha, are specifically different, and both these are generically different from the specimen (B) which is a true Daemonorops. In examining Ridley's description of the mixtum compositum, *D. Calospatha,* one notes that: the description of the leaves and of the flowers is based on (A) ; that of the general spadix, spadix branches and spathes on (A) and (C) ; that of the fruit scales on (B) ; and that of the seed on (C). The calyx is lobed and cup-shaped in (A) and (B), but Beccari had stated (in the manuscript description) that the calyx in the fruit of (C) was entire, three pointed and explanate; and so the involucre in (B) which is 'circular, cupshaped, entire' (Ridley), has been evidently mistaken for the calyx of the species by Ridley.

I typify *D. Calospatha* on Scortechini's specimen (C) since this syntype supplied Ridley not only his specific epithet but also a good deal of his specific description.

Though *D. Calospatha* is the earliest priorable binomial for the species, yet Ridley's trivial epithet cannot be adopted for the species under Calospatha, because tautonyms are proscribed under the Rules.

Despite the incompleteness of the specimens, the establishment of a separate genus is justified on the characters of the inflorescence. I give below a generic diagnosis based on both the specimens:

> *Stem* short, apparently climbing, polycarpic, *Leaves* large; leaflets linear, closely and minutely setose along the margins up to the very base. *Inflorescence* short, when young fusiform, long beaked, the floriferous portion almost completely enveloped on the lower spathe. *Spathes* persistent, imbricate, open, abruptly and arcuately long-beaked, more or less armed at least in the apical portion, the lowermost largest, the others gradually smaller, each including a small floriferous branchlet. *Female flowers* ovate, broad-based, solitary, or each attended by a neuter flower; calyx 3-pointed or lobed; corolla 2–2½ times as long as the calyx, with triangular, deeply parted lobes. *Neuter flowers* much more slender than the female, accompanying only some female flowers, calyx narrowed to a punctiform base leaving very obscure areola on the involucre. *Fruit* scaly, 2–3 seeded, with a homogeneuous albumen, marked with indistinct chalazal fovea; embryo basal.

Both the specimens on which the genus is based are from the state of Perak, Malaya. In one specimen a portion of leaf and flowering spadix are represented; in the other there is only a fruiting spadix. But from the general arrangement and the shape of the spathes and floriferous branches, there is no doubt that they are both congeneric. These specimens are separated specifically on the characters of the calyx as follows:

(*a*) Female calyx undivided, 3-pointed, shallow (explanate in fruit) *C. Scortechinii* Becc.

(*b*) Female calyx conspicuously lobed, deeply cup-shaped (apparently not explanate in the fruit) *C. confusa* Furtado.

Calospatha confusa Furtado **sp. nov. (Fig. 23).**

C. Scortechinii Becc. sensu Ridl., Fl. Mal. Pen. V (1925) 47 p.p.

Daemonorops Calospatha Ridl., Mat. F. Mal. Pen. II (1907) 179 quoad specimen apud montem a Keledang a Ridleyo collectum (ex altera parte = *C. Scortechinii* et *Daemonorops* sp.).

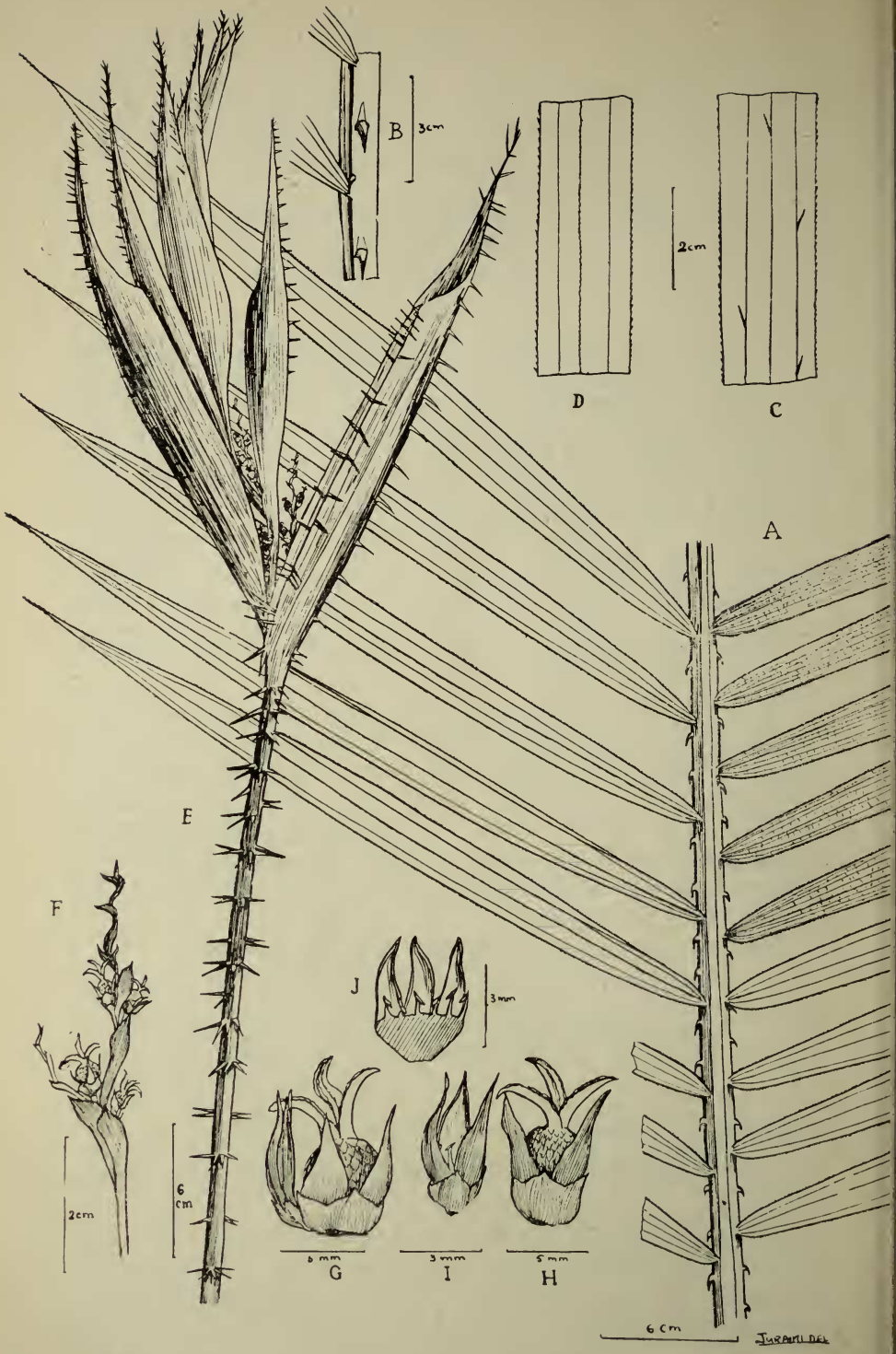

Fig. 23. *Calospatha confusa (Holotypus; Ridley sn. in September 1898).*
A, Pars frondis media. B, Particula rhacheos frondis. C, Particula folioli ut pagi superior appareat. D, Ibid. ut pagina inferior appareat. E, Spadix cum pedu culo. F, Ramulus florigerus ex axilla spathae basalis. G, Flos ♀ cum flo neutro. H, Flos ♀. I, Flos neuter. J, Flos neuter apertus ut staminum inser appareat.

A. *C. Scortechinii* differt femineis calycibus alte cupularibus, conspicue 3-partitis, basi latis.

Frondes magnae ut videtur; rachis 32 cm. longa tantum visa, bifacialis, ventre inermis, canaliculata, dorso unguibus solitariis, in 3-series verticales dispositis, reflexis, in seriebus marginalibus inaequalibus praedita. *Foliola* alternantia, equidistantia, 2·5–3 cm. inter se dissita, 33–37 cm. long, 2–2·3 cm. lata, tricostata, lineario-ensiformia, basin versus paulo attenuata, plicatula, apicem versus sensim angustata, in apicem longe acuminatum terminata; in pagina superiore costae supra media setosae; in pagina inferiore costa mediana tantum per duas tertias partes superiores minute vel obsolete spinulosa; margines setis minutis approximatis per totam longitudinem praeditae. *Spadix femineus* tantum visus, juventute plus minusve fusiformis, in parte spathifera circa 20 cm. longus, pedunculo 20–25 cm. longo, tabaccino-furfuraceo, aculeis elasticis porrectis, saepe basi lateraliter unitis, 10–25 cm. longis armato suffultus. *Spathae primariae* subalternantes imbricatae, inaequales, persistentes, deciduo furfuraceae, basi brevissime tubulares, superne loriformes ligulares, apice abrupte longe rostratae, in axillis ramulos solitarios gerentes; basalis maxima, 19 cm. longa (5 cm. longo rostro incluso), 3 cm. lata, juventute sequentias spathes fere includens, secus margines bicarinata, secus carinas et mediam spinis 5–10 mm. longis vel minoribus, porrectis vel reflexis, basi superne intumescentibus armata; spathae sequentiae sensim minores, apicales minima, spatha secunda aculeis ad basin fere praedita, alterae apicem versus tantum armatae. *Ramuli primarii* spathis primariis multo breviores, 2–7 cm. longi, axi flexuosi, basales ramulos secundarios brevissimos 1–2 gerentes; spathae secundariae tertiariaeque breves, tubulares, infundibuliformes, apice ligulares, inermes, striatae; spathellae breves, annulares apice oblique truncatae, ligulatae, inermes, striatae; involucrophorum leviter cupulare, ligulatum; involucrum involucrophoro paullo majus, subdisciforme, integrum vel non, haud profundum. *Flores feminei* ovati, 7–9 mm. longi; calyx cupularis, basi latissimus, immo paullo depressus, conspicue trifidus; corolla calyce 2–2½-plo longior, in 3 lobos altos, triangulares, divisa; ovarium globosum vel ovatum, apice stigmatibus 3, longis praeditum. *Flores neutri* pergraciles; calyx infundibuliformis, basin versus cuneatus, immo fere punctiformis, ad medium fere lobatus; corolla calyce 2–3-plo longior; staminodia 6 ut videtur. *Fructus* ignotus.

Stem apparently climbing. *Leaves* (known only from a fragment 32 cm. long) apparently long and cirriferous; rachis in the specimen bifacial, slightly channelled, on the dorsal side convex, and armed with large solitary, reflexed, stout distant hooks arranged in three longitudinal series (one median and two marginal), 2–3 very small solitary, sometimes obsolete hooks being seated between two large marginal hooks in the same vertical line. *Leaflets* alternate, equidistant, 2·5–3 cm. apart, 33–37 cm. long 2–2·3 cm. wide, tricostate, linear-ensiform, slightly narrowed towards the base, gradually tapered into long acuminate apex; the costae setose in the upper surface from the middle upwards, in the lower surface glabrous excepting the upper half of the midrib which is armed in the upper two-thirds with minute or sometimes obsolete prickles; the margins very closely and minutely setulose up to the very base. *Female inflorescence* short, more or less fusiform when young, about 20 cm. long, excluding the 20–25 cm. long peduncle,

the latter covered with tobacco-brown scurf and armed with flat, elastic, straight 10–23 mm. long spines, often united laterally at base. *Primary spathes* subalternately imbricate (9 in all), covered with deciduous brown scurf, oblong, slightly tubular at base, soon strap-shaped, abruptly arched into a long subulate beak, each spathe bearing a branch in its axil; the basal spathe the largest, 19 cm. long (including 5 cm. beak), 3 cm. wide, in young stages almost completely enclosing the others, carinate along each of the two margins, armed along the median longitudinal line and marginal carinae with 5–10 mm. or smaller, straight or reflexed spines, having a bulbous base on the upper side; subsequent spathes gradually smaller, all more or less armed along the dorsal median line towards the apex. *Primary branches* much smaller than the primary spathes, 2–7 cm. long, flexuous in the axis; the basal branches often produce 1–2 secondary branchlets; the secondary and tertiary spathes short, tubular, funnel-shaped, obliquely truncate, unarmed, striate; spathels short, annular, ligulate on one side, striate; involucrophore shallow cupular, slightly produced on one side; involucre slightly exceeding the involucrophore, shallow disciform, entire or not. *Female flowers* ovate, 7–9 mm. long; calyx cup-shaped, conspicuously trifid, broad based, somewhat depressed at the very centre of the base; corolla 2–2½ times as long as the calyx, deeply 3-parted into triangular lobes; ovary globose or ovate, crowned with 3 deeply divided stigma. *Neuter flowers* present in some, much more slender than the female; calyx funnel-shaped, conspicuously 3-lobed, narrowed to an almost punctiform, callused base; staminodes nearly decomposed, but appears to be six; ovary decomposed. *Fruit* not known.

MALAYA: *Perak*, Gunong Keledang (Ridley in September 1898 —syntype of *D. Calospatha*).

The female calyx in this species is cup-shaped and conspicuously lobed, whereas in *C. Scortechinii* the type is depicted and described as entire, explanate and 3-angled. In the latter species the lowermost spathe is described as empty, whereas in *C. confusa* the lowermost spathe, like others, subtends a floriferous branchlet; but the presence or the absence of floriferous branchlet in the axil of the lowermost spathe appears to be not a specific character, but a result of environmental conditions.

Calospatha Scortechinii Becc. in Ann. Roy, Bot. Gard. Calc. XII, 1 (1911) 232 et XII, 2 (1918) 17 t. 12; Ridl., Fl. Mal. Pen. V (1925) 47 pro parte.

Daemonorops Calospatha Ridl., Mat. Fl. Mal. Pen. II (1907) 179 quoad specimen Scortechinianum tantum; Becc. supra cit. in obs.

Stem and leaves unknown. *Female spadix* short, 35 cm. long, furnished with subdistichous imbricate spathes; pedicellar part short convered with 10–25 cm. long flattened spines. *Spathes:* lowermost spathe 21 cm. long (including 5 cm. long beak), 3 cm. wide, covered all over outside with unequal, scattered spines,

sheathing a short peduncular part without any axillary branch; subsequent spathes gradually shorter, protecting each a floriferous branch in its axil, deep cinnamon-brown in colour, rusty furfuraceous outside, explanate except at the very base, suddenly narrowed into a long, broad beak; the lower spathes 10–12 cm. long (not including 7–8 cm. long beak) more or less spinous towards the apex, the latter itself armed with conspicuous, spreading, straight flattened, 10–15 mm. long spines. *Floriferous branches* shorter than their respective axillant spathes, 2–5 cm. long, the lower ones usually bearing a smaller, secondary branchlet at base; axial part sinuous, few flowered, speedily narrow above. *Secondary* and *tertiary spathes* not visible in the drawing of the type, nor described. *Spathels* annular-cyathiform, slightly produced on one side; involucrophorum shallow cupular; involucre slightly exceeding involucrophore, entire. *Female flowers* solitary or not (areola and neuter flowers not seen), 7 mm. long; calyx with 3 acute points; corolla longer than the calyx, very deeply parted; sterile stamens 6; ovary globular. *Fruiting perianth* explanate; the calyx entire with the base slightly thickened; corolla lobes twice as long as the calyx, elongate and triangular. *Fruit* 2–3 seeded, globular, 2 cm. in diam., shortly beaked, crowned by the permanent recurved stigmas; scales arranged in 24 vertical series, uniformly shining black in the exposed part, with a V-shaped depression along the centre, acute at apex, obsoletely erose-toothed in the margins. *Seeds* 12 mm. long, 6 mm. thick, enveloped with scanty integument, with indistinct chalazal fovea, homogeneous albumen and basal embryo.

MALAYA: *Perak*, probably on Gunong Bubu (Scortechini, type).

It appears probable that here as in *C. confusa* the neuter flowers are present, but since the base of the calyx of the neuter flowers is very pointed, the areola is very minute and so not visible in old spikelets.

The description given here has been adapted from the one given by Beccari, but a few supplementary data are added after the study of the drawing given of the type by Beccari.

Though *D. Calospatha* is the oldest priorable name to this species, the specific epithet cannot be instated under the genus Calospatha because tautonyms are proscribed under the Rules.